

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant : Kazumi KOBAYASHI Art Unit : 3714
Appl. No. : 10/759,133 Examiner : Masud Ahmed
Filed : January 20, 2004 Conf. No. : 6663
For : VIRTUAL CAMERA CONTROL METHOD IN THREE-
DIMENSIONAL VIDEO GAME

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Sir:

This appeal is from the rejection of claims 1-26, as set forth in the Final Official Action dated December 15, 2009.

A response under 37 C.F.R. § 1.116 was filed on March 15, 2010, that was entered by the Examiner, as noted in the Advisory Action dated April 1, 2010. A Notice of Appeal and a Pre-Appeal Brief Request for Review were filed on April 15, 2010 in response to the Advisory Action dated April 1, 2010. The Panel Decision from Pre-Appeal Brief Review is dated April 30, 2010. The two-month period for filing an Appeal Brief is set to expire on June 15, 2010.

The requisite fee for filing an Appeal Brief under 37 C.F.R. §41.20(b)(2) is submitted concurrently herewith. However, if for any reason the necessary fee is not associated with this file or the concurrently submitted fee is inadequate, the Commissioner is authorized to charge the fee for the Appeal Brief, and any necessary extension of time fees, to Deposit Account No. 19-0089.

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I. REAL PARTY IN INTEREST

The real party in interest is Kabushiki Kaisha Square Enix (also trading as Square Enix Co., Ltd.).

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any prior or pending appeals, interferences, or judicial proceedings that may be related to, directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF THE CLAIMS

Claims 1-26 are pending in the present application with claims 1, 18, 22, and 26 being in independent form. Claims 1-26 stand finally rejected and are the subject of this appeal.

Claim 27 was previously cancelled.

IV. STATUS OF THE AMENDMENTS

A Response under 37 C.F.R. § 1.116 was filed on March 15, 2010, that was entered by the Examiner, as noted in the Advisory Action dated April 1, 2010. However, this Response did not amend any of the pending claims. Thus, the pending claims are as set forth in the Response filed under 37 C.F.R. § 1.111 on July 20, 2009.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Initially, Appellant notes that the following descriptions are made with respect to the independent claims and include references to particular parts of the specification. As such, the following are merely exemplary and are not a surrender of other aspects of the present invention that are also enabled by the present specification as well as those that are directed to equivalent structures or methods.

Independent Claim 1

Independent claim 1 recites a three-dimensional video game apparatus that perspective-transforms a virtual three-dimensional space where multiple characters exist onto a virtual screen based upon a virtual camera having a viewpoint position moved in response to positions of the multiple characters.

The three-dimensional video game apparatus comprises: a character mover that moves at least one of the characters in the virtual three-dimensional space; a central position calculator that calculates a central position of the characters in the virtual three-dimensional space; a temporary point setter that sets multiple temporary points in the virtual three-dimensional space with reference to the calculated central position; a temporary viewpoint position setter that sets a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle; a distance calculator that calculates a distance between each of the set temporary viewpoint positions and the calculated central position; a viewpoint position evaluator that evaluates each temporary viewpoint position based on each calculated distance; a viewpoint position selector that selects a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result; a viewpoint

position mover that moves the viewpoint position of the virtual camera to the selected position; and a perspective transformer that perspective-transforms the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved.

According to independent claim 1, the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

In this regard, exemplary embodiments of the present specification are shown in Figures 1-13 of the present application and disclosed at page 8, line 24 to page 32, line 15 of the present application as filed. More specifically and particularly, an exemplary embodiment is disclosed with respect to Figures 1 and 6-8 of the present application on page 15, line 25 to page 22, line 16 of the present application as filed.

The exemplary embodiments disclose a three-dimensional video game apparatus 100 that perspective-transforms a virtual three-dimensional space where multiple characters 201-206 exist onto a virtual screen 402 based upon a virtual camera 401 having a viewpoint position 403 moved in response to positions Δ of the multiple characters 201-206.

The three-dimensional video game apparatus 101 comprises: a character mover that moves at least one of the characters 201-206 in the virtual three-dimensional space; a central position calculator that calculates a central position 500 of the characters 201-206 in the virtual three-dimensional space; a temporary point setter that sets multiple temporary points 502a, 502b, 502c in the virtual three-dimensional space with reference to the calculated central position 500; a temporary viewpoint position setter that sets a temporary viewpoint position (such as, *e.g.*, 403) on each straight line, connecting each of the temporary points 502a, 502b, 502c to the central position 500, where all of the characters 201-206 can be projected on the virtual screen 402 with a predetermined visual angle; a

distance calculator that calculates a distance between each of the set temporary viewpoint positions (such as, *e.g.*, 403) and the calculated central position 500; a viewpoint position evaluator that evaluates each temporary viewpoint position (such as, *e.g.*, 403) based on each calculated distance; a viewpoint position selector that selects a position where the viewpoint 403 of the virtual camera 401 should be moved among the temporary viewpoint positions (such as, *e.g.*, 403) based on the evaluation result; a viewpoint position mover that moves the viewpoint position 403 of the virtual camera 401 to the selected position; and a perspective transformer that perspective-transforms the three-dimensional space onto the virtual screen 402 based upon the virtual camera 400 where the viewpoint position 403 is moved.

According to independent claim 1, the temporary points 502a, 502b, 502c are set around the central position 500 and a direction to each of the temporary points 502a, 502b, 502c from the central position 500 is predetermined based on polar coordinates of the central position 500.

Independent Claim 18

Independent claim 18 recites a three-dimensional video game apparatus that perspective-transforms a virtual three-dimensional space where multiple characters exist onto a virtual screen based upon a virtual camera having a viewpoint position moved in response to positions of the multiple characters. The three-dimensional video game apparatus comprises a memory that stores a game program, a processor that executes the game program, and a displayer that displays a processing result of the processor.

The game program is stored in the memory and causes the processor to execute: moving at least one of the characters in the virtual three-dimensional space; calculating a central position of the characters in the virtual three-dimensional space; setting multiple temporary points in the virtual three-dimensional space with reference to the calculated

central position; setting a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle; calculating a distance between each of the set temporary viewpoint positions and the calculated central position; evaluating each temporary viewpoint position based on each calculated distance; selecting a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result; moving the viewpoint position of the virtual camera to the selected position; and perspective-transforming the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved.

According to independent claim 18, the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

In this regard, exemplary embodiments of the present specification are shown in Figures 1-13 of the present application and disclosed at page 8, line 24 to page 32, line 15 of the present application as filed. More specifically and particularly, an exemplary embodiment is disclosed with respect to Figures 1 and 6-8 of the present application on page 15, line 25 to page 22, line 16 of the present application as filed.

The exemplary embodiments disclose a three-dimensional video game apparatus 100 that perspective-transforms a virtual three-dimensional space where multiple characters 201-206 exist onto a virtual screen 402 based upon a virtual camera 401 having a viewpoint position 403 moved in response to positions Δ of the multiple characters 201-206. The three-dimensional video game apparatus 100 comprises a memory 107 that stores a game program, a processor 103 that executes the game program, and a displayer 121 that displays a processing result of the processor 103.

The game program is stored in the memory 107 and causes the processor 103 to execute: moving at least one of the characters 201-206 in the virtual three-dimensional space; calculating a central position 500 of the characters 201-206 in the virtual three-dimensional space (S201); setting multiple temporary points 502a, 502b, 502c in the virtual three-dimensional space with reference to the calculated central position 500 (S202); setting a temporary viewpoint position (such as, *e.g.*, 403) on each straight line, connecting each of the temporary points 502a, 502b, 502c to the central position 500, where all of the characters 201-206 can be projected on the virtual screen 402 with a predetermined visual angle (S203); calculating a distance between each of the set temporary viewpoint positions (such as, *e.g.*, 403) and the calculated central position 500 (S204); evaluating each temporary viewpoint position (such as, *e.g.*, 403) based on each calculated distance (S204-S207); selecting a position where the viewpoint 403 of the virtual camera 401 should be moved among the temporary viewpoint positions (such as, *e.g.*, 403) based on the evaluation result (S209); moving the viewpoint position 403 of the virtual camera 401 to the selected position (S211); and perspective-transforming the three-dimensional space onto the virtual screen 402 based upon the virtual camera 401 where the viewpoint position 403 is moved.

According to independent claim 18, the temporary points 502a, 502b, 502c are set around the central position 500 and a direction to each of the temporary points 502a, 502b, 502c from the central position 500 is predetermined based on polar coordinates of the central position 500.

Independent Claim 22

Independent claim 22 recites a computer-implemented method for controlling a viewpoint position of a virtual camera based on positions of multiple characters existing in a virtual three-dimensional space in a three-dimensional video game that perspective-

transforms the virtual three-dimensional space onto a virtual screen based upon the virtual camera.

The computer-implemented method comprises: moving, with a computer, at least one of the characters in the virtual three-dimensional space; calculating, with the computer, a central position of the characters in the virtual three-dimensional space; setting, with the computer, multiple temporary points in the virtual three-dimensional space with reference to the calculated central position; setting, with the computer, a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle; calculating, with the computer, a distance between each of the set temporary viewpoint positions and the calculated central position; evaluating, with the computer, each temporary viewpoint position based on each calculated distance; selecting, with the computer, a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result; moving, with the computer, the viewpoint position of the virtual camera to the selected position; and perspective-transforming, with the computer, the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved.

According to independent claim 22, the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

In this regard, exemplary embodiments of the present specification are shown in Figures 1-13 of the present application and disclosed at page 8, line 24 to page 32, line 15 of the present application as filed. More specifically and particularly, an exemplary embodiment is disclosed with respect to Figures 1 and 6-8 of the present application on page 15, line 25 to page 22, line 16 of the present application as filed.

The exemplary embodiments disclose a computer-implemented method for controlling a viewpoint position 403 of a virtual camera 401 based on positions Δ of multiple characters 201-206 existing in a virtual three-dimensional space in a three-dimensional video game that perspective-transforms the virtual three-dimensional space onto a virtual screen 402 based upon the virtual camera 401.

The computer-implemented method comprises: moving, with a computer, at least one of the characters 201-206 in the virtual three-dimensional space; calculating, with the computer, a central position 500 of the characters 201-206 in the virtual three-dimensional space (S201); setting, with the computer, multiple temporary points 502a, 502b, 502c in the virtual three-dimensional space with reference to the calculated central position 500 (S202); setting, with the computer, a temporary viewpoint position (such as, *e.g.*, 403) on each straight line, connecting each of the temporary points 502a, 502b, 502c to the central position 500, where all of the characters 201-206 can be projected on the virtual screen 402 with a predetermined visual angle (S203); calculating, with the computer, a distance between each of the set temporary viewpoint positions (such as, *e.g.*, 403) and the calculated central position 500 (S204); evaluating, with the computer, each temporary viewpoint position (such as, *e.g.*, 403) based on each calculated distance (S204-S207); selecting, with the computer, a position where the viewpoint 403 of the virtual camera 401 should be moved among the temporary viewpoint positions (such as, *e.g.*, 403) based on the evaluation result (S209); moving, with the computer, the viewpoint position 403 of the virtual camera 401 to the selected position (S211); and perspective-transforming, with the computer, the three-dimensional space onto the virtual screen 402 based upon the virtual camera 401 where the viewpoint position 403 is moved.

According to independent claim 22, the temporary points 502a, 502b, 502c are set around the central position 500 and a direction to each of the temporary points 502a, 502b,

502c from the central position 500 is predetermined based on polar coordinates of the central position 500.

Independent Claim 26

Independent claim 26 recites a computer-readable storage medium on which a game program for executing a video game that perspective-transforms a virtual three-dimensional space where multiple characters exist onto a virtual screen based upon a virtual camera having a viewpoint position moved in response to positions of the multiple characters.

The game program causing a computer apparatus to execute: moving at least one of the characters in the virtual three-dimensional space; calculating a central position of the characters in the virtual three-dimensional space; setting multiple temporary points in the virtual three-dimensional space with reference to the calculated central position; setting a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle; calculating a distance between each of the set temporary viewpoint positions and the calculated central position; evaluating each temporary viewpoint position based on each calculated distance; selecting a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result; moving the viewpoint position of the virtual camera to the selected position; and perspective-transforming the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved.

According to independent claim 26, the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

In this regard, exemplary embodiments of the present specification are shown in Figures 1-13 of the present application and disclosed at page 8, line 24 to page 32, line 15 of the present application as filed. More specifically and particularly, an exemplary embodiment is disclosed with respect to Figures 1 and 6-8 of the present application on page 15, line 25 to page 22, line 16 of the present application as filed.

The exemplary embodiments disclose a computer-readable storage medium 107 on which a game program for executing a video game that perspective-transforms a virtual three-dimensional space where multiple characters 201-206 exist onto a virtual screen 402 based upon a virtual camera 401 having a viewpoint position 403 moved in response to positions Δ of the multiple characters 201-206.

The game program causing a computer apparatus to execute: moving at least one of the characters 201-206 in the virtual three-dimensional space; calculating a central position 500 of the characters 201-206 in the virtual three-dimensional space (S201); setting multiple temporary points 502a, 502b, 502c in the virtual three-dimensional space with reference to the calculated central position 500 (S202); setting a temporary viewpoint position (such as, *e.g.*, 403) on each straight line, connecting each of the temporary points 502a, 502b, 502c to the central position 500, where all of the characters 201-206 can be projected on the virtual screen 402 with a predetermined visual angle (S203); calculating a distance between each of the set temporary viewpoint positions (such as, *e.g.*, 403) and the calculated central position 500 (S204); evaluating each temporary viewpoint position (such as, *e.g.*, 403) based on each calculated distance (S204-S207); selecting a position where the viewpoint 403 of the virtual camera 401 should be moved among the temporary viewpoint positions (such as, *e.g.*, 403) based on the evaluation result (S209); moving the viewpoint position 403 of the virtual camera 401 to the selected position (S211); and perspective-

transforming the three-dimensional space onto the virtual screen 402 based upon the virtual camera 401 where the viewpoint position 403 is moved.

According to independent claim 26, the temporary points 502a, 502b, 502c are set around the central position 500 and a direction to each of the temporary points 502a, 502b, 502c from the central position 500 is predetermined based on polar coordinates of the central position 500.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-26 (*i.e.*, all pending claims) were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Appl. Pub. No. 2001/0024972 to Kitao (hereinafter "KITAO") in view of EP Pat. Pub. No. 0528422 to Yamada (hereinafter "YAMADA").

VII. ARGUMENT

Independent claims 1, 18, 22, and 26 (*i.e.*, all pending independent claims) recite, respectively, a three-dimensional video game apparatus, a three-dimensional video game apparatus that comprises a memory that stores a game program and a processor that executes the game program, a computer-implemented method, and a computer-readable storage medium. Appellant submits that each of the independent claims (*i.e.*, claims 1, 18, 22, and 26) generally recites a similar combination of features. In this regard, Appellant argues the insufficiency of the rejection of each of the independent claims as being unpatentable over the combination of KITAO and YAMADA solely with respect to the non-limiting and exemplary embodiment of independent claim 18. It is submitted that independent claims 1, 22, and 26 are inappropriately rejected at least for the reasons set forth with respect to independent claim 18.

A. *Exemplary Embodiment of Independent Claim 18 of the Present Application*

For convenience, Appellant sets forth a detailed and exemplary explanation of independent claim 18 with reference to Figures 7A-C of the present application and page 15, line 25 to page 22, line 16 of the present application as filed. The detailed and exemplary explanation, and the reference numerals and disclosure identified therein, are solely set forth for exemplary purposes and are not intended to be limiting in any way.

Independent claim 18 recites, in part:

... moving at least one of the characters in the virtual three-dimensional space;

calculating a central position of the characters in the virtual three-dimensional space; ...

In this regard, as shown in Figure 7A, each of the multiple characters 201-206 exist at a position Δ in the virtual three-dimensional space (not indicated). A central position 500 of the positions Δ of the multiple characters 201-206 is calculated. The central position may be calculated, for example, as described by page 16, lines 2-9 of the present application as filed.

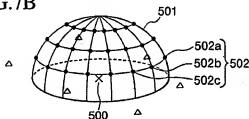
Independent claim 18 further recites, in part:

. . . setting multiple temporary points in the virtual three-dimensional space with reference to the calculated central position; . . .

wherein the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

As shown in Figure 7B (reproduced below for convenience), multiple temporary points 502a, 502b, 502c are set in the three dimensional space around the central position 500.

FIG.7B

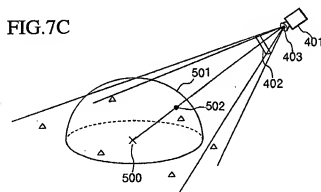


The temporary points 502a, 502b, 502c are set around the central position 500 based on polar coordinates of the central position 500 with a direction to each of the temporary points 502a, 502b, 502c being predetermined. For example, as shown in Figure 7b and described by page 16, line 21 to page 17, line 5, a virtual hemisphere 501 may be drawn around the central position 500. Thereafter, the temporary points 502a, 502b, 502c may be set at predetermined positions on the hemisphere 501.

Independent claim 18 further recites, in part:

... setting a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle; ...

In other words, a straight line is drawn through each of the temporary positions 502a, 502b, 502c from the central position 500. Figure 7C (reproduced below for convenience) shows an example of one of the straight lines (i.e., the line extending from 500 through 502).



However, according to independent claim 18, a straight line would be drawn, from the central position 500, through each of the temporary positions 502a, 502b, 502c. A temporary viewpoint position (such as 403) is set on each straight line where all of the characters 201-206 (indicated in Figure 7C by their positions Δ) can be projected on the virtual screen. Once again, Figure 7C shows an example of one of the temporary viewpoint positions (i.e., 403), however, as recited by independent claim 18, a temporary viewpoint position would be set on each of the straight lines connecting one of the temporary positions 502a, 502b, 502c and the central position 500.

Independent claim 18 further recites, in part:

*. . . calculating a distance between each of the set
temporary viewpoint positions and the calculated central
position; . . .*

That is, a distance between each of the temporary viewpoint positions (such as, *e.g.*, 403) and the central position 500 is calculated. In other words, a distance from each of a plurality of possible viewpoint positions to the central position 500 is calculated.

Independent claim 18 further recites, in part:

*. . . evaluating each temporary viewpoint position
based on each calculated distance;*

*selecting a position where the viewpoint of the
virtual camera should be moved among the temporary
viewpoint positions based on the evaluation result; . . .*

In this regard, each temporary viewpoint position (such as, *e.g.*, 403) is evaluated based on the calculated distance from the temporary viewpoint position to the central position 500. Page 17, line 13 to page 22, line 3 of the present application as filed describes an exemplary embodiment of a method for evaluating each of the temporary viewpoint positions. After each temporary viewpoint position is evaluated, one of the temporary viewpoint positions is selected as a position to which a viewpoint 403 of the virtual camera 401 is moved. In other words, from among a plurality of temporary viewpoint positions, one of the temporary viewpoint positions is selected as a viewpoint position 403 of the virtual camera 401.

Lastly, independent claim 18 further recites, in part:

*. . . moving the viewpoint position of the virtual
camera to the selected position; and*

*perspective-transforming the three-dimensional
space onto the virtual screen based upon the virtual camera
where the viewpoint position is moved, . . .*

In other words, the viewpoint 403 of the virtual camera 401 is moved to the position of the selected one of the temporary viewpoint positions, and the virtual space is perspective-transformed on the virtual screen 402.

Accordingly, in view of the above, independent claim 18 generally recites, in part, that multiple temporary points 502a, 502b, 502c are set around a central position; a straight line connecting each of the multiple temporary points 502a, 502b, 502c and the central position 500 is determined; a temporary viewpoint position (such as, *e.g.*, 403) is set on each straight line where all of the characters 201-206 can be projected on a virtual screen 402 within a predetermined angle; a distance between each temporary viewpoint position (such as, *e.g.*, 403) and the central position 500 is calculated; each temporary viewpoint position (such as, *e.g.*, 403) is evaluated based on the calculated distance; and one of the temporary viewpoint positions (such as, *e.g.*, 403) is selected, based on the evaluation results, to which to move the virtual camera 403.

B. Relevant Legal Standard

Under 35 U.S.C. § 103(a), “[a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”¹

According to the Supreme Court, “[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated

¹ 35, U.S.C. § 103 (2004).

reasoning with some rational underpinning to support the legal conclusion of obviousness.”²

Appellant respectfully submits that the rejection of independent claim 18 under 35 U.S.C. § 103 as being unpatentable over the combination of KITAO and YAMADA is improper. Specifically, Appellant respectfully submits that KITAO and YAMADA, whether considered alone or together in any proper combination thereof, fail to disclose the above-mentioned features as recited in the claimed combination of independent claim 18. Additionally, it is further submitted that the Examiner has failed to clearly articulate any appropriate rationale to support a conclusion that the above-mentioned features are rendered obvious in view of the combination of KITAO and YAMADA.

C. KITAO and YAMADA Fail to Render Obvious the Feature of Setting Multiple Temporary Points as Recited by Independent Claim 18

1. U.S. Appl. Pub. No. 2001/0024972 to Kitao

KITAO discloses a game system including a first viewpoint position P1 and a second viewpoint position P2 (KITAO, Figures 3 and 5).

According to KITAO, the first viewpoint position P1 is a default viewpoint position for a player character (KITAO, ¶[0057]). The first viewpoint position P1 is set on a backside of the player character 31 and slightly inclined toward the moving direction of the player character 31 (KITAO, ¶[0055]). As the player character 31 progresses through the game, the first viewpoint position P1 moves with the player character 31 so as to keep a relative position with the player character 31 (KITAO, ¶[0055]).

² *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

KITAO further discloses that, when the player character 31 moves within a predetermined distance D of an opponent character 32, the first viewpoint position $P1$ of the player character 31 is switched to a second viewpoint position $P2$ (KITAO, ¶[0058]). The second viewpoint position $P2$ is set at a position that faces an observation point p that is the middle point between the player character 31 and the opponent character 32 (KITAO, ¶[0063]). According to KITAO, the second viewpoint position $P2$ is located at a position on the side of the player character 31 and the opponent character 32 at a distance from the observation point p such that the player character 31 and the opponent character 32 are each seen facing one another and at an altitude such that the player character 31 and the opponent character 32 can be looked down on (KITAO, ¶[0062], Figure 5).

2. The Present Application and KITAO are Fundamentally Distinguished

Initially, Appellant notes that the present application and KITAO are fundamentally distinguished. That is, as set forth above, KITAO merely discloses a video game in which the viewpoint position is one of two position, *i.e.*, the first viewpoint position $P1$ or the second viewpoint position $P2$. According to KITAO, the viewpoint position is the first viewpoint position $P1$ when a distance d between a player character 31 and an opponent character 32 exceeds a predetermined distance D . When the distance d between the player character 31 and the opponent character 32 is within the predetermined distance D , the viewpoint position switches to the second viewpoint position $P2$. Thus, based on the distance d between the player character 31 and the opponent character 32, it is known whether the viewpoint position is the first viewpoint position $P1$ or the second viewpoint position $P2$. In other words, KITAO does not

disclose creating “multiple temporary points” or “temporary viewpoint positions” which are not, in fact, actual viewpoint positions, but which are used to determine the viewpoint position.

In contradistinction, the present application discloses that multiple temporary points are set around a calculated central position of characters, each of which is associated with a temporary viewpoint position, and that one of the temporary viewpoint positions is determined to be the viewpoint position. Thus, the present application discloses that multiple temporary viewpoint positions are set, and that one of the temporary viewpoint positions is determined to be the actual viewpoint position. In this regard, in a non-limiting and exemplary embodiment of the present application, the multiple temporary viewpoint positions may be set around the calculated central position of the characters, and the temporary viewpoint position that is determined to be closest to the characters may be set as the actual viewpoint position.

Appellant respectfully submits that KITAO fails to disclose such features. In fact, KITAO expressly discloses that it is an object of KITAO to constantly maintain the second viewpoint position P2 on a side of the player character 31 and the opponent character 32 to prevent the game from giving a player an uncomfortable feeling (KITAO, Abstract). Thus, Appellant respectfully submits that KITAO expressly teaches away from setting multiple temporary points and temporary viewpoint positions around a central position and changing the actual viewpoint based on the distances between the temporary viewpoint positions and the central position as recited by the present application.

Notwithstanding the above, irrespective of the manner in which KITAO is interpreted, Appellant respectfully submits that KITAO fails to disclose or render obvious the multiple temporary points as recited in the claimed combination of independent claim 18.

3. KITAO Fails to Render Obvious the Feature of Setting Multiple Temporary Points

In the outstanding Final Official Action dated December 15, 2009, the Examiner appears to assert that ¶[0057] discloses the feature of independent claim 18 of the present application of setting multiple temporary points with reference to the calculated central position. Appellant respectfully disagrees.

To the contrary, ¶[0057] of KITAO merely discloses that the viewpoint switches between the second viewpoint position P2 and the first viewpoint position P1. Specifically, ¶[0057] discloses that the viewpoint switches from the second viewpoint position P2 to the first viewpoint position P1 when the distance d between the player character 31 and the opponent character 32 is more than a predetermined distance D (KITAO, ¶[0057]).

In this regard, Appellant respectfully submits that such disclosure, no matter the manner in which it is interpreted, fails to disclose or render obvious the feature of the present application of setting multiple temporary points with reference to the calculated central position as recited in the claimed combination of independent claim 18.

a) The First Viewpoint Position Cannot be Reasonably Interpreted to Render Obvious a Temporary Point as Recited by Independent Claim 18

Initially, with respect to the feature of the present application of setting multiple temporary points, Appellant notes that independent claim 18 recites that the multiple temporary points are set with reference to the calculated central position. In this regard, Appellant notes that § 2143.03 of the Manual of Patent Examining Procedure recites that:

*All words in a claim must be considered in judging the patentability of that claim against the prior art.*³

In other words, it is not permitted to ignore the words of one claim limitation when considering another claim limitation. Thus, in order for a viewpoint of KITAO to be considered to suggest one of the multiple temporary points of the present application, the viewpoint must be set with reference to a calculated central position, such as the middle point between the point between the player character 31 and the opponent character 32.

According to KITAO, the first viewpoint position P1 is set at a backside and slightly inclined toward the moving direction of the player character 31 and at an altitude around the head of the player character 31 (KITAO, ¶[0055]). KITAO, however, does not disclose that the first viewpoint position P1 is set with reference to the middle point. Rather, the first viewpoint position P1 of KITAO appears to be set solely based upon the player character 31.

Thus, it is respectfully submitted that the first viewpoint position P1 cannot be reasonably interpreted to be one of the multiple temporary points of the present application that are set with reference to the calculated central position.

³ Manual of Patent Examining Procedure § 2141 (Eight Edition, July 2008).

b) The Second Viewpoint Position P2 of KITAO Cannot be Reasonably Interpreted to Render Obvious the Multiple Temporary Points as Recited by Independent Claim 18

As submitted above, KITAO discloses that the second viewpoint position P2 is set at a position that faces an observation point p that is the middle point between the player character 31 and the opponent character 32 (KITAO, ¶[0063]). According to KITAO, the second viewpoint position P2 is located at a position on the side of the player character 31 and the opponent character 32 at a distance from the observation point p such that the player character 31 and the opponent character 32 are each seen facing one another and at an altitude such that the player character 31 and the opponent character 32 can be looked down on (KITAO, ¶[0062], Figure 5).

In view of the above, even if KITAO were interpreted as suggesting that multiple points are set on the side of the player character 31 and the opponent character 32 in order to determine the distance from the observation point p such that the player character 31 and the opponent character 32 are each seen facing one another (which Appellant respectfully submits that KITAO does not appear to disclose or suggest nor which Appellant submits that KITAO can be reasonably interpreted to disclose or suggest), KITAO would still fail to suggest the temporary points as recited by the claimed combination of independent claim 18. That is, independent claim 18 expressly recites that the multiple temporary points are set *around* the central position. In contrast, KITAO merely discloses that the observation point is determined to be on a side of the player character 31 and the opponent character 32 at an altitude such that the player character 31 and the opponent character 32 can be looked down on (KITAO, ¶[0062], Figure 5).

In this regard, as noted above, KITAO discloses that the scope and purpose of the invention is to maintain the second viewpoint position P2 at a side of the player character 31 and the opponent character 32 such that a player does not get an uncomfortable feeling (KITAO, Abstract). Accordingly, it is respectfully submitted that KITAO teaches away from setting points *around* the middle point. Thus, even if KITAO were interpreted as disclosing or suggesting setting multiple points to determine the second viewpoint position P2 (which it does not nor cannot be reasonably interpreted to), KITAO teaches away from setting the multiple points *around* a central position as recited by claim 18 of the present application.

Therefore, it is submitted that, when determining the second viewpoint position P2, KITAO fails to render obvious the feature of claim 18 of the present application of setting multiple temporary points *around* the central position as recited by the claimed combination of independent claim 18.

c) Successive Second Viewpoint Positions of KITAO Cannot be Reasonably Interpreted to Render Obvious the Multiple Temporary Points as Recited by Independent Claim 18

In the Advisory Action dated April 1, 2010, the Examiner acknowledges that KITAO merely “teaches the single viewpoint on the single line.” However, the Examiner asserts that the player character 31 and the opponent character 32 of KITAO may move, and thus, that the second viewpoint position P2 of KITAO would be recalculated. Accordingly, the Examiner asserts that KITAO teaches “recalculating or setting another temporary point.” It appears that the Examiner asserts that the successive, recalculated secondary viewpoints of KITAO suggest the multiple temporary points of the present

application.⁴ Appellant respectfully disagrees and again notes that the Examiner is not permitted to consider the features of the claims in isolation. That is, the Examiner is not permitted to ignore the words of one limitation when considering another limitation.

Independent claim 18 recites that a central position of the characters is calculated, and that multiple temporary points are set with reference to *the* calculated central position. In other words, according to independent claim 18 of the present application, multiple temporary points are set around a single, calculated central position.

According to the Examiner's interpretation of KITAO, the successive second viewpoint positions P2 of KITAO are each set around a different middle position. That is, KITAO does not disclose or suggest that *multiple* temporary points are set around a *single* middle position of the player character 31 and the opponent character 32. Accordingly, at least for this reason, it is respectfully submitted that, contrary to the Examiner's assertion, the successive, recalculated second viewpoint positions P2 cannot be reasonably interpreted to disclose or render obvious the multiple temporary points as recited in the claimed combination of independent claim 18.

Additionally to, and independently of, the above, Appellant again notes that the present application is fundamentally distinguished from KITAO. As previously noted, the scope and purpose of KITAO is to maintain the second viewpoint position P2 at a

⁴ With respect to the Examiner's assertion, Appellant notes that it appears that the Examiner makes such an assertion as the Examiner believes that the claims of the present application fail to clearly show how the temporary points within the multiple lines are set to be the camera positions. Appellant respectfully disagrees that the claims are unclear and believes that such an argument would merely unnecessarily cloud issues at hand. In this regard, the claims clearly recite that: multiple temporary points are set around a central position based on polar coordinates of the central position; a temporary viewpoint position is set on each straight line connecting each of the temporary points and the central position such that all of the character can be projected on the virtual screen within a predetermined visual angle; a distance from each temporary viewpoint position to the central position is calculated; the distances are evaluated; and, based on the evaluated distances, one of the temporary viewpoint positions is selected as a viewpoint position for the virtual camera.

side of the player character 31 and the opponent character 32 such that a player does not get an uncomfortable feeling (KITAO, Abstract). In this regard, independent claim 18 recites that the multiple temporary points are set *around* the calculated central position.

Given the scope and purpose of KITAO, Appellant respectfully submits that the successive, recalculated second viewpoint positions P2 of KITAO cannot be reasonably interpreted to disclose or suggest the feature of independent claim 18 of setting multiple temporary points *around* the calculated central position. To the contrary, KITAO expressly teaches away from setting the successive, recalculated second viewpoint positions P2 *around* the middle position of the player character 31 and the opponent character 32, and, instead, teaches consistently setting each successive, recalculated second viewpoint position P2 on a side of the player character 31 and the opponent character 32 to prevent a player from getting an uncomfortable feeling.

With respect to the above, Appellant notes that, on pages 4-5 of the outstanding Final Official Action, the Examiner asserts that one of ordinary skill in the art would be motivated to modify KITAO to set viewpoints around the middle point so that all characters may be scene within a line of sight. Initially, with respect to such a statement, Applicant again notes that KITAO expressly teaches away from moving the second viewpoint to a position other than the side of the player character 31 and the opponent character 32. Furthermore, Appellant notes that the Examiner does not offer any clearly articulated rationale as to why one of ordinary skill in the art would be motivated to modify KITAO to set multiple temporary points around a single middle point as generally recited by independent claim 18.

Thus, at least for this additional reason, Appellant respectfully submits that the successive, recalculated second viewpoint positions P2 of KITAO cannot be reasonably interpreted to render obvious the multiple temporary points of independent claim 18, as recited in the claimed combination, that are set *around* the calculated central position.

Additionally to, and independently of, the above, independent claim 18 generally recites that multiple temporary points are set so that one of a plurality of temporary viewpoint positions, each of which is associated with one of the multiple temporary points, is determined to be a viewpoint position of a virtual camera. Specifically, independent claim 18 generally recites that a temporary viewpoint position is associated with each of the multiple temporary points, a distance between each temporary viewpoint position and the calculated central position is determined, and one of the temporary viewpoint positions is determined as the viewpoint position of the virtual camera based on an evaluation of the calculated distances. Thus, independent claim 18 recites that the viewpoint position of the virtual camera is determined to be associated with only one of the multiple temporary points.

Contrary to the multiple temporary points of independent claim 18, KITAO does not disclose that a viewpoint position is determined based on one of the successive, recalculated second viewpoint positions P2. Rather, KITAO discloses that each of the successive, recalculated second viewpoint positions P2 are set as viewpoint positions independently of one another. Thus, it is submitted that, contrary to the Examiner's assertion in the Advisory Action dated April 1, 2010, the successive, recalculated second viewpoint positions P2 of KITAO cannot be reasonably interpreted to render obvious the

temporary points as recited in the claimed combination of independent claim 18 when each of the features recited therein are considered in view of the claim as a whole.

Accordingly, at least in view of the above, it is respectfully submitted that successive, recalculated second viewpoint positions P2 of KITAO cannot be reasonably interpreted to render obvious the multiple temporary points of independent claim 18 that are set *around* a *single* calculated central position and that determine a *single* viewpoint position of the virtual camera.

4. EP Pat. Pub. No. 0528422 to Yamada Fails to Cure the Deficiencies of KITAO

In the outstanding Final Official Action, YAMADA is merely relied upon to disclose setting points based on polar coordinates. In this regard, YAMADA appears to disclose a system for “panning” around an object for viewing the object from different angles (YAMADA, col. 2, lines 23-32). According to YAMADA, a viewpoint may be moved hemispherically about an object (YAMADA, col. 2 line 54 to col. 3, line 1 and Figure 7A).

YAMADA, however, does not appear to disclose or suggest setting multiple temporary points, as recited in the claimed combination of independent claim 18, to determine a viewpoint. That is, YAMADA does not appear to disclose that the viewpoint is determined from multiple temporary points. Rather, YAMADA merely appears to disclose that a viewpoint may be changed. Moreover, the Examiner has failed to present a convincing line of reasoning, or any reasoning at all, as to how YAMADA renders obvious such a feature.

Therefore, at least since KITAO and YAMADA, alone or in combination, fail to disclose or suggest the above-captioned feature of independent claim 18, and since the

Examiner has failed to offer any clearly articulated reasoning as to how KITAO and YAMADA render obvious such a feature, Appellant respectfully submits that the rejection of independent claim 18 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellant respectfully requests withdrawal of the rejection at least for this reason.

D. KITAO and YAMADA Fail to Render Obvious the Feature of Setting a Temporary Viewpoint Position on Each Straight Line as Recited by Independent Claim 18

Additionally to, and independently of, the above, independent claim 18 recites the feature of setting a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle. Appellant respectfully submits that the combination of KITAO and YAMADA fails to render obvious such a feature.

1. KITAO Fails to Render Obvious Such a Feature

As submitted above, and as acknowledged by the Examiner in the Advisory Action dated April 1, 2010, KITAO merely discloses “the single viewpoint on the single line.” That is, KITAO merely discloses setting a second viewpoint position P2 such that the player character 31 and the opponent character 32 are visible. In contradistinction, independent claim 18 generally recites setting a temporary viewpoint position on *each* straight line that connects each of the temporary points to *the* calculated central position. In other words, independent claim 18 recites that *multiple* straight lines are connected to a *single* central position and a temporary viewpoint position is set on *each* line. It is respectfully submitted that setting a single viewpoint on a single line fails to disclose such a feature.

In this regard, KITAO merely discloses a single viewpoint position on a side of the player character 31 and the opponent character 32 to prevent an uncomfortable feeling in a player. In the outstanding Final Official Action, the Examiner fails to offer any articulated reasoning as to why one of ordinary skill in the art would be motivated to modify KITAO to set a temporary viewpoint on multiple lines which are each connected to a *single* central position.

2. YAMADA Fails to Cure the Deficiencies of KITAO

As previously submitted, YAMADA is merely relied upon to disclose setting points based on polar coordinates, and is submitted to merely disclose “panning around” an object (YAMADA, col. 2, lines 23-32). YAMADA, however, does not appear to disclose setting a temporary viewpoint position on multiple straight lines as generally recited by independent claim 18. Moreover, the Examiner fails to offer any rationale as to how YAMADA renders obvious such a feature.

Therefore, at least since KITAO and YAMADA, alone or in combination, fail to disclose the above-captioned feature of independent claim 18, and since the Examiner has failed to offer any reasoning at all as to how the combination of KITAO and YAMADA render obvious such a feature, Appellant respectfully submits that the rejection of independent claim 18 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellant respectfully requests withdrawal of the rejection at least for this additional reason.

E. KITAO and YAMADA Fail to Render Obvious the Feature of Calculating a Distance as Recited by Independent Claim 18

Additionally to, and independently of, the above, independent claim 18 recites the feature of calculating a distance between each of the set temporary viewpoint positions

and the calculated central position. Appellant respectfully submits that the combination of KITAO and YAMADA fails to render obvious such a feature.

1. KITAO Fails to Render Obvious Such a Feature

In the outstanding Final Official Action, it is asserted that ¶[0018] of KITAO renders obvious the feature of independent claim 18 of calculating a distance between each of the set temporary viewpoint positions and the calculated central position of the characters. Appellant respectfully disagrees.

To the contrary, ¶[0018] of KITAO merely discloses a game system wherein “a first object operated by a player and a second object having a relation with the first object move in a virtual three-dimensional space” (KITAO, ¶[0018]). According to KITAO, the game system includes “a distance judging device for judging a distance between the first object and the second object” (KITAO, ¶[0018]). A first viewpoint position P1 is switched to a second viewpoint position P2 corresponding to a judgment result of the distance judging device (KITAO, ¶[0018]). In other words, as set forth above, ¶[0018] of KITAO merely appears to disclose that the first viewpoint position P1 switches to the second viewpoint position P2 when a distance d between the player character 31 and the opponent character 32 is within a predetermined distance D.

¶[0018] of KITAO, however, does not appear to disclose or suggest calculating the distance between temporary viewpoint positions and a central position. Appellant respectfully submits that calculating the distance between player characters cannot be reasonably interpreted to suggest the feature of independent claim 18 of calculating a distance between temporary viewpoint positions and a calculated central position of characters. Moreover, the Examiner does not offer any clearly articulated reasoning, or

any reasoning at all, to support a conclusion that the feature, as recited by independent claim 18, of calculating the distance between each of the set temporary viewpoint positions and the calculated central position is rendered obvious by the feature of KITAO of judging a distance between objects that move in a virtual space.

2. YAMADA Fails to Cure the Deficiencies of KITAO

As previously submitted, YAMADA merely appears to disclose a system for “panning” around an object for viewing the object from different angles (YAMADA, col. 2, lines 23-32). According to YAMADA, the viewpoint may be moved hemispherically about the object (YAMADA, col. 2 line 54 to col. 3, line 1 and Figure 7A).

In this regard, YAMADA is not relied upon in the outstanding Final Official Action to disclose the feature of independent claim 18 of calculating a distance between each of the set temporary viewpoint positions and the calculated central position, nor does YAMADA appear to disclose such a feature.

Therefore, at least since KITAO and YAMADA, alone or in combination, fail to disclose or suggest the above-captioned feature of independent claim 18, and since the Examiner has failed to offer any reasoning at all as to how KITAO and YAMADA render obvious such a feature, Appellant respectfully submits that the rejection of independent claim 18 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellant respectfully requests withdrawal of the rejection at least for this additional reason.

F. KITAO and YAMADA Fail to Render Obvious the Feature of Evaluating Each Temporary Viewpoint Position as Recited by Independent Claim 18

Additionally to, and independently of, the above, independent claim 18 recites the feature of evaluating each temporary viewpoint position based on each calculated

distance. Appellant respectfully submits that the combination of KITAO and YAMADA fails to render obvious such a feature.

1. KITAO Fails to Render Obvious Such a Feature

In the outstanding Final Official Action, it is asserted that ¶[0018] of KITAO renders obvious the feature of independent claim 18 of evaluating each temporary viewpoint position based on each calculated distance. Appellant respectfully disagrees.

To the contrary, as set forth above, ¶[0018] of KITAO merely discloses that the first viewpoint position P1 switches to the second viewpoint position P2 when a distance *d* between the player character 31 and the opponent character 32 is within a predetermined distance *D*.

Thus, KITAO discloses a single distance, *i.e.*, the distance *d* between the player character 31 and the opponent character 32, and that one of the first viewpoint position P1 and the second viewpoint position P2 is selected based on the distance. In contrast, independent claim 18 generally recites that a distance is associated with *each* temporary viewpoint position, and that *each* temporary viewpoint position is evaluated based on *each* calculated distance. Appellant respectfully submits that selecting a viewpoint based on a distance between player characters fails to suggest the feature of independent claim 18 of evaluating *multiple* temporary viewpoint positions based on a calculated distance associated with *each* of the *multiple* temporary viewpoint positions to determine which of the temporary viewpoint positions is to be the viewpoint. Moreover, the Examiner does not offer any clearly articulated reasoning, or any reasoning at all, as to why one of ordinary skill in the art would be motivated to modify KITAO to associate and evaluate a

different distance with each of multiple viewpoints as generally recited by independent claim 18 of the present application.

2. YAMADA Fails to Cure the Deficiencies of KITAO

As previously submitted, YAMADA is merely relied upon to disclose setting points based on polar coordinates, and does not appear to disclose calculating or evaluating distances.

Therefore, at least since KITAO and YAMADA, alone or in combination, fail to expressly or impliedly suggest the above-captioned feature of independent claim 18, and since the Examiner has failed to offer any reasoning at all as to how the combination of KITAO and YAMADA render obvious the above-captioned feature of independent claim 18, Appellant respectfully submits that the rejection of independent claim 18 under 35 U.S.C. § 103(a) is improper. Accordingly, Appellant respectfully requests withdrawal of the rejection at least for this additional reason.

G. Independent Claims 1, 22, and 26

As submitted above, independent claims 1, 22, and 26 recite, respectively, a three-dimensional video game apparatus, a computer-implemented method, and a computer-readable storage medium generally including a similar combination of features as those set forth by independent claim 18. As such, the arguments set forth with respect to independent claim 18 are submitted to be equally applicable to independent claims 1, 22, and 26. Independent claims 1, 22, and 26 are not separately argued.

H. Dependent Claims 2-17, 19-21, and 23-25

Claims 1, 18, and 22 are in independent form, and each of claims 2-17, 19-21, and 23-25 depend directly or indirectly from one of independent claims 1, 18, and 22. As

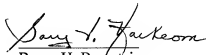
such, the arguments as set forth above with respect to independent claim 18, and consequently independent claims 1 and 22, are equally applicable to dependent claims 2-17, 19-21. Dependent claims 2-17, 19-21 are not separately argued.

I. Conclusion

Accordingly, at least for the arguments set forth above, Appellant respectfully submits that the rejection of claims 1-26 (*i.e.*, all pending claims) as being unpatentable over KITAO and YAMADA, as set forth in the outstanding Final Official Action, is improper. Thus, Appellant respectfully requests that the Board reverse the decision of the Examiner to reject claims 1-26 under 35 U.S.C. § 103(b) as being unpatentable over KITAO and YAMADA.

If there are any questions about this application, any representative of the U.S. Patent and Trademark Office is invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,
Kazumi KOBAYASHI


for Bruce H. Bernstein
Reg. No. 29,027

Gary V. Harkcom
Reg. No. 62,956

June 9, 2010
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191

VIII. CLAIMS APPENDIX

1. A three-dimensional video game apparatus that perspective-transforms a virtual three-dimensional space where multiple characters exist onto a virtual screen based upon a virtual camera having a viewpoint position moved in response to positions of the multiple characters, comprising:

a character mover that moves at least one of the characters in the virtual three-dimensional space;

a central position calculator that calculates a central position of the characters in the virtual three-dimensional space;

a temporary point setter that sets multiple temporary points in the virtual three-dimensional space with reference to the calculated central position;

a temporary viewpoint position setter that sets a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle;

a distance calculator that calculates a distance between each of the set temporary viewpoint positions and the calculated central position;

a viewpoint position evaluator that evaluates each temporary viewpoint position based on each calculated distance;

a viewpoint position selector that selects a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result;

a viewpoint position mover that moves the viewpoint position of the virtual camera to the selected position; and

a perspective transformer that perspective-transforms the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved,

wherein the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

2. The three-dimensional video game apparatus according to claim 1, further comprising an angle calculator that calculates an angle formed by a straight line connecting a current viewpoint position of the virtual camera to the calculated central position and each straight line connecting each of the temporary viewpoint positions to the central position,

wherein said viewpoint position evaluator further evaluates each temporary viewpoint position based on the calculated angle.

3. The three-dimensional video game apparatus according to claim 1, further comprising an overlap degree calculator that calculates an overlap degree of the characters when the viewpoint of the virtual camera is set to each of the temporary viewpoint positions and perspective transformation is executed, wherein said viewpoint position evaluator further evaluates each temporary viewpoint position based on the calculated overlap degree.

4. The three-dimensional video game apparatus according to claim 3, wherein multiple reference points are assigned to the multiple characters, and said overlap degree calculator calculates the overlap degree of the characters according to an overlapping area of polygons drawn by connecting the reference points projected on the virtual screen in connection with each of the multiple characters.

5. The three-dimensional video game apparatus according to claim 1, further comprising a height difference determiner that determines a height difference between the characters, wherein said viewpoint position evaluator further evaluates each temporary viewpoint position based on the determination result of the height difference.

6. The three-dimensional video game apparatus according to claim 5, wherein said height difference determiner includes a judge that judges whether the height difference between the characters is more than a predetermined value, and said viewpoint position evaluator evaluates each temporary viewpoint position such that the higher the temporary viewpoint position is placed, the more highly the temporary viewpoint position is rated when the height difference between the characters is not more than the predetermined value, the lower the temporary viewpoint position is placed, the more highly the temporary viewpoint position is rated when the height difference between the characters is more than the predetermined value.

7. The three-dimensional video game apparatus according to claim 1, wherein said viewpoint position selector selects multiple viewpoint positions among the temporary viewpoint positions according to the evaluation result, and said viewpoint position mover

switches the viewpoint of the virtual camera to the selected viewpoint positions sequentially.

8. The three-dimensional video game apparatus according to claim 7, wherein said viewpoint position mover includes a controller that controls switching of the viewpoint position of the virtual camera every time a predetermined time period passes.

9. The three-dimensional video game apparatus according to claim 7, wherein said viewpoint position mover includes a controller that controls switching of the viewpoint position of the virtual camera according to the evaluation result of the selected multiple positions.

10. The three-dimensional video game apparatus according to claim 7, further comprising a viewpoint switching director that directs switching of the viewpoint position of the virtual camera by a player's operation, wherein said viewpoint position mover includes a controller that controls switching of the viewpoint position of the virtual camera every time switching is directed from said viewpoint switching director.

11. The three-dimensional video game apparatus according to claim 1, wherein a range limit where the viewpoint position of the virtual camera can be moved is fixed in the virtual three-dimensional space, and the three-dimensional video game apparatus further includes a range limit judge that judges whether the selected viewpoint position of the virtual camera is within the range limit, a viewpoint position adjustor that moves the viewpoint position of the virtual camera to a central position within the range limit when

the selected viewpoint position of the virtual camera is not within the range limit, and a visual angle adjustor that changes the visual angle of the virtual camera such that all of the characters are projected on the virtual screen.

12. The three-dimensional video game apparatus according to claim 1, further comprising a viewpoint moving director that directs movement of the viewpoint position of the virtual camera by a player's operation, wherein said viewpoint mover moves the viewpoint position of the virtual camera according to the direction of the movement.

13. The three-dimensional video game apparatus according to claim 12, wherein said viewpoint position mover moves the viewpoint position of the virtual camera regardless of whether the viewpoint position is the position selected from the temporary viewpoint positions.

14. The three-dimensional video game apparatus according to claim 1, further comprising a time counter that counts elapse of a fixed time interval, and a starter that starts said central position calculator, said temporary point setter, said distance calculator, and said viewpoint position evaluator every time the fixed time interval elapses.

15. The three-dimensional video game apparatus according to claim 1, wherein the characters include multiple player characters that move in the virtual three-dimensional space by player's instructions, and said three-dimensional video game apparatus further comprises a player character switcher that sequentially switches a player character that can receive a player's instruction and a starter that starts said central position calculator, said

temporary point setter, said distance calculator, and said viewpoint position evaluator every time the player character that can receive the player's instruction is switched.

16. The three-dimensional video game apparatus according to claim 1, wherein said central position calculator assigns weight to each of the characters existing in the three-dimensional space to calculate the central position of the multiple characters.

17. The three-dimensional video game apparatus according to claim 1, further comprises a character selector that selects a character to be used to decide the viewpoint position of the virtual camera among the characters existing in the three-dimensional space according to the progress of the game.

18. A three-dimensional video game apparatus that perspective-transforms a virtual three-dimensional space where multiple characters exist onto a virtual screen based upon a virtual camera having a viewpoint position moved in response to positions of the multiple characters, comprising a memory that stores a game program, a processor that executes said game program, and a displayer that displays a processing result of said processor, wherein the game program is stored in said memory and causes said processor to execute:

moving at least one of the characters in the virtual three-dimensional space;

calculating a central position of the characters in the virtual three-dimensional space;

setting multiple temporary points in the virtual three-dimensional space with reference to the calculated central position;

setting a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle;

calculating a distance between each of the set temporary viewpoint positions and the calculated central position;

evaluating each temporary viewpoint position based on each calculated distance;

selecting a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result;

moving the viewpoint position of the virtual camera to the selected position; and

perspective-transforming the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved,

wherein the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

19. The three-dimensional video game apparatus according to claim 18, wherein the game program further calculates an angle formed by a straight line connecting a current viewpoint position of the virtual camera to the calculated central position and each straight line connecting each of the temporary viewpoint positions to the central position, and each temporary viewpoint position is further evaluated based on the calculated angle.

20. The three-dimensional video game apparatus according to claim 19, wherein the game program further calculates an overlap degree of the characters when the viewpoint of the virtual camera is set to each of the temporary viewpoint positions and

perspective transformation is executed, and each temporary viewpoint position is further evaluated based on the calculated overlap degree.

21. The three-dimensional video game apparatus according to claim 18, wherein the game program further determines a height difference between the characters, and each temporary viewpoint position is further evaluated based on a determination result of the height difference.

22. A computer-implemented method for controlling a viewpoint position of a virtual camera based on positions of multiple characters existing in a virtual three-dimensional space in a three-dimensional video game that perspective-transforms the virtual three-dimensional space onto a virtual screen based upon the virtual camera, comprising:

moving, with a computer, at least one of the characters in the virtual three-dimensional space;

calculating, with the computer, a central position of the characters in the virtual three-dimensional space;

setting, with the computer, multiple temporary points in the virtual three-dimensional space with reference to the calculated central position;

setting, with the computer, a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle;

calculating, with the computer, a distance between each of the set temporary viewpoint positions and the calculated central position;

evaluating, with the computer, each temporary viewpoint position based on each calculated distance;

selecting, with the computer, a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result;

moving, with the computer, the viewpoint position of the virtual camera to the selected position; and

perspective-transforming, with the computer, the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved,

wherein the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

23. The method according to claim 22, wherein an angle formed by a straight line connecting a current viewpoint position of the virtual camera to the calculated central position and each straight line connecting each of the temporary viewpoint positions to the central position is further calculated, and each temporary viewpoint position is further evaluated based on the calculated angle.

24. The method according to claim 22, wherein an overlap degree of the characters is further calculated when the viewpoint of the virtual camera is set to each of the temporary viewpoint positions and perspective transformation is executed, and each temporary viewpoint position is further evaluated based on the calculated overlap degree.

25. The method according to claim 22, wherein a height difference between the characters is further determined, and each temporary viewpoint position is further evaluated based on a determination result of the height difference.

26. A computer-readable storage medium on which a game program for executing a video game that perspective-transforms a virtual three-dimensional space where multiple characters exist onto a virtual screen based upon a virtual camera having a viewpoint position moved in response to positions of the multiple characters, the game program causing a computer apparatus to execute:

moving at least one of the characters in the virtual three-dimensional space;

calculating a central position of the characters in the virtual three-dimensional space;

setting multiple temporary points in the virtual three-dimensional space with reference to the calculated central position;

setting a temporary viewpoint position on each straight line, connecting each of the temporary points to the central position, where all of the characters can be projected on the virtual screen with a predetermined visual angle;

calculating a distance between each of the set temporary viewpoint positions and the calculated central position;

evaluating each temporary viewpoint position based on each calculated distance;

selecting a position where the viewpoint of the virtual camera should be moved among the temporary viewpoint positions based on the evaluation result;

moving the viewpoint position of the virtual camera to the selected position; and

perspective-transforming the three-dimensional space onto the virtual screen based upon the virtual camera where the viewpoint position is moved,

wherein the temporary points are set around the central position and a direction to each of the temporary points from the central position is predetermined based on polar coordinates of the central position.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDING APPENDIX

None